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ISLAMIC RELIGIOUS EDUCATION LEARNING MANAGEMENT THROUGH THE USE OF CHATBOTS TO INCREASE STUDENT INTERACTIVITY AND MOTIVATION

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Abstract:
The development of artificial intelligence (AI) opens up new opportunities in the management of more interactive and adaptive learning, including in Islamic Religious Education (PAI). However, many PAI learning practices are still conventional, teacher-centered, and have minimal interaction, resulting in low student motivation to learn. This study aims to examine PAI learning management through the use of chatbots to increase student interactivity and motivation, with a focus on planning, implementation, and evaluation of learning. This research uses a qualitative approach with a descriptive-analytical design. Data was collected through observations, semi-structured interviews, and documentation of PAI teachers, students, and schools involved in the implementation of chatbot-based learning. Data analysis is carried out through the stages of reduction, data presentation, and conclusion drawing by triangulating sources and techniques to maintain the validity of the data. The results of the study show that the systematic use of chatbots can increase student interactivity and motivation. In the planning stage, the chatbot is integrated with PAI materials that are conceptual and reflective. In implementation, chatbots create a dialogical, responsive, and student-centered learning environment, which encourages active participation and independent learning. In evaluation, chatbots assist teachers in process-based formative assessments. This study concludes that chatbots can be a strategic instrument in PAI learning management if positioned as an integrated pedagogical support, not a substitute for the role of educators.

KATA KUNCI
manajemen pembelajaran PAI, chatbot, interaktivitas, motivasi belajar, kecerdasan buatan

Abstrak:
Perkembangan kecerdasan buatan (AI) membuka peluang baru dalam pengelolaan pembelajaran yang lebih interaktif dan adaptif, termasuk dalam Pendidikan Agama Islam (PAI). Namun, banyak praktik pembelajaran PAI yang masih konvensional, berpusat pada guru, dan minim interaksi, yang mengakibatkan rendahnya motivasi belajar siswa. Penelitian ini bertujuan untuk mengkaji manajemen pembelajaran PAI melalui pemanfaatan chatbot guna meningkatkan interaktivitas dan motivasi siswa, dengan fokus pada perencanaan, pelaksanaan, dan evaluasi pembelajaran. Penelitian ini menggunakan pendekatan kualitatif dengan desain deskriptif-analitis. Data dikumpulkan melalui observasi, wawancara semi-terstruktur, dan dokumentasi terhadap guru PAI, siswa, serta pihak sekolah yang terlibat dalam implementasi pembelajaran berbasis chatbot. Analisis data dilakukan melalui tahapan reduksi, penyajian data, dan penarikan kesimpulan dengan triangulasi sumber dan teknik untuk menjaga keabsahan data. Hasil penelitian menunjukkan bahwa pemanfaatan chatbot secara sistematis dapat meningkatkan interaktivitas dan motivasi siswa. Pada tahap

perencanaan, chatbot diintegrasikan dengan materi PAI yang bersifat konseptual dan reflektif. Pada pelaksanaan, chatbot menciptakan lingkungan belajar yang dialogis, responsif, dan berpusat pada siswa, yang mendorong partisipasi aktif dan kemandirian belajar. Dalam evaluasi, chatbot membantu guru dalam penilaian formatif berbasis proses. Penelitian ini menyimpulkan bahwa chatbot dapat menjadi instrumen strategis dalam manajemen pembelajaran PAI jika diposisikan sebagai pendukung pedagogis yang terintegrasi, bukan pengganti peran pendidik.

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INTRODUCTION

The development of artificial intelligence (AI) technology has brought fundamental changes in the way learners access, process, and build knowledge, while encouraging the birth of a new paradigm in learning design that is more adaptive, interactive, and meaningful (Soffi et al., 2025; Yan et al., 2024; Zirak et al., 2025). AI enables learning systems to respond dynamically to individual learning needs through data analysis, content personalization, and instant feedback, so that the learning process is no longer uniform, but rather contextual and learner-centered(Akavova et al., 2023; Rane et al., 2023). This transformation is becoming increasingly relevant in the context of 21st century learning that demands the mastery of critical thinking skills, collaboration, creativity, and problem-solving as the main competencies of students (Rusmin et al., 2024).

The learning of Islamic Religious Education (PAI) in many educational units shows that there is a gap between technological developments and pedagogical practices in the field. A number of empirical studies reveal that PAI learning is still dominated by a conventional approach that is teacher-centered, emphasizes the memorization of normative texts, and does not provide space for dialogue, reflection, and exploration of the meaning of Islamic values in a contextual manner (Kaloko, 2025; Sukari & Hasan, 2025). This condition has an impact on the low involvement of students both cognitively, affectively, and socially in the learning process. (Fazrin et al., 2025) emphasizing that the lack of interactivity in religious learning causes students to tend to be passive, less critical, and do not have enough space to relate religious material to the reality of daily life.

These problems are even more complex when they are associated with the aspect of student learning motivation. Learning motivation is a key factor that determines the quality of student engagement and learning success.(Merdiaty & Sulistiasih, 2024; Momanu, 2025) Musnandar et.al. explains that intrinsic motivation plays an important role in encouraging students' active engagement, curiosity, and perseverance in learning. When learning is not able to provide a challenging and meaningful learning experience, students tend to be passive and only oriented towards fulfilling academic demands alone, which ultimately hinders the process of internalizing values and conceptual understanding(Musnandar et al.,

2024; Wahyudin et al., 2023). In the context of religious education, learning motivation is also greatly influenced by the relevance of the material, dialogical approach, and students' opportunities to reflect on religious values personally and contextually (Jayanti & Susanti, 2023).

The use of chatbot technology has emerged as one of the strategic innovations in the world of education. Educational chatbots are AI-based applications designed to interact with users in real-time, resembling human conversations, so that they have the potential to create a more personalized, responsive, and flexible learning experience (Chen et al., 2023; El Mourabit et al., 2025) Chang stated that chatbots are able to provide live feedback, provide repetitive exercises, and support self-paced learning, which can significantly increase student motivation and learning engagement. Other research has also shown that the use of chatbots in learning can improve concept understanding, encourage independent exploration of materials, and strengthen learning interactions outside of formal classrooms (Chang et al., 2023; Ilieva et al., 2023).

The potential of chatbots in learning has been widely studied, most of the previous research still focused on aspects of the effectiveness of technology on learning outcomes or user satisfaction, without reviewing in depth how the technology is managed within a systematic learning management framework. Studies that explicitly place chatbots in the context of planning, implementing, and evaluating learning, especially in PAI learning, are still relatively limited (Riswandi & Alfurqan, 2025). These limitations show that there is a research gap between the pedagogical potential of chatbots as learning innovations and teachers' managerial practices in integrating these technologies effectively and sustainably to increase student interactivity and learning motivation.

The integration of learning technology cannot be separated from the needs-based planning process, structured implementation, and continuous evaluation to ensure optimal achievement of learning objectives Effective learning planning must consider learner characteristics, socio-cultural contexts, and institutional visions and goals, while evaluation serves as a reflective instrument for continuous improvement of learning quality. (Adewale et al., 2024; Major et al., 2021) Therefore, the use of chatbots in PAI learning needs to be understood not just as technology adoption, but as a managerial strategy oriented towards improving the quality of learning processes and outcomes.

PAI learning management through the use of chatbots in increasing student interactivity and learning motivation, by comprehensively examining aspects of planning, implementation, and evaluation of learning. This research is expected to make a theoretical contribution to the development of a PAI learning management model based on AI technology, as well as a practical contribution for teachers, curriculum developers, and education policy makers in designing PAI learning that is innovative, contextual, and relevant to the characteristics of the digital generation, without ruling out Islamic values as the core of religious education.

RESEARCH METHODS

This study uses a qualitative approach with a descriptive-analytical design to explore in depth the use of chatbots in Islamic Religious Education (PAI) learning.(Tharaba & Wahyudin, 2024) Data were collected through three main methods, observation, semi-structured interviews, and documentation. Observations were made to observe the interaction between teachers, students, and chatbots in the learning process. Interviews were conducted with PAI teachers, students, and schools to obtain their views and experiences regarding the use of chatbots. Documentation includes learning tools and relevant chatbot interaction notes.(Salmona & Kaczynski, 2024) This research was carried out at MTs Negeri 6 Kediri, a junior high school that has integrated the use of chatbots in PAI learning.

The selection of research subjects used the purposive sampling technique, which targets individuals who are directly involved in the chatbot-based learning process.(Khoa, Hung, & Hejsalem-Brahmi, 2023) This method ensures that the data collected comes from people who have direct experience and relevance to the research topic. This improves the quality and focus of the information obtained during the study. For data analysis, data reduction, data presentation, and conclusion drawing were carried out interactively. During this process, the data obtained is selected and analyzed to find emerging patterns. To ensure the validity of the data, this study uses triangulation, which is examining data results from various sources and techniques. This approach helps to ensure the accuracy and consistency of the findings obtained.(Abdussamad, 2021)

RESULTS AND DISCUSSION

The results of the data findings in accordance with conditions in the field were obtained by the researcher through observation, in-depth interviews, and documentation of predetermined informants. This research was conducted on Islamic Religious Education (PAI) learning, which utilizes chatbots as a learning support medium. Learning management is a key factor in determining the success of the learning process, especially in the context of the use of artificial intelligence-based digital technology. Learning management includes systematically integrated planning, implementation, and evaluation to effectively achieve learning objectives (Wita Marheni et al., 2024). The results of this study show that the use of chatbots in PAI learning makes a real contribution to increasing student interactivity and motivation if managed in a planned and sustainable manner.

Chatbot-Based PAI Learning Planning

Learning planning is a fundamental stage that determines the effectiveness of technology integration in the learning process. In the context of Islamic Religious Education (PAI) learning, planning not only functions as a technical guide, but also as a pedagogical foundation in directing the achievement of cognitive, affective, and spiritual learning goals. (Lumbilsa et al., 2023; Rahmiati et al., 2024) emphasizing that effective learning planning must include the formulation of objectives, the

selection and organization of materials, the determination of learning strategies and media, and the design of interintegrated evaluations. Without systematic planning, the use of technology has the potential to be a mere complement without having a significant impact on the quality of learning.

The results of the study show that PAI teachers have designed learning by integrating chatbots as supporting media that are in line with the basic competencies and learning objectives of PAI. The chatbot is designed to support conceptual and reflective materials, such as morals, worship, and the internalization of Islamic values, which require a deep understanding process and meaningful dialogue. The selection of materials allows for a two-way interaction between students and chatbots, so that students not only passively receive information, but also engage in the process of asking, interpreting, and reflecting on the religious values they learn.

Furthermore, learning planning also includes the preparation of question-and-answer interaction scenarios, adjusting the chatbot's language style to suit the level of cognitive development and student characteristics, and determining the role of chatbots as a means of strengthening materials and independent learning. Teachers consciously position chatbots not as a substitute for the role of educators, but rather as learning partners that help students access additional explanations, clarification of concepts, and reflective exercises outside of face-to-face hours. This approach shows pedagogical awareness in utilizing technology as an integral part of learning management.

The findings are in line with the views of the(Fazil et al., 2024; Gosak et al., 2024; Kotsidis & Anastasiades, 2025) which emphasizes that the success of the use of AI in education is determined more by the readiness of pedagogical planning than the sophistication of the technology itself. Careful planning allows chatbots to function optimally as a supportive instrument for targeted and meaningful learning. Thus, the integration of chatbots in PAI learning planning not only reflects adaptation to technological developments but also shows a learning management strategy that is oriented towards increasing interactivity, learning independence, and the quality of students' understanding of Islamic values.

Implementation of PAI Learning Through Chatbots

At the implementation stage, the research findings show that the use of chatbots significantly increases student interactivity and learning motivation in Islamic Religious Education (PAI) learning. Chatbot-based interactions encourage students to be more active in asking questions, engaging in discussions, and exploring learning materials independently and continuously. The characteristics of chatbots that are responsive, dialogical, and available at all times create an adaptive and non-intimidating learning environment, thereby lowering students' affective barriers, especially for those who previously showed passive tendencies in the learning process. These findings show that chatbots function as a learning medium that can facilitate simultaneous student involvement in the cognitive and affective

domains, as emphasized in the study of student engagement (Hastomo et al., 2025).

The results of this study confirm the findings(Baskara, 2023; Huang et al., 2025; Kuhail et al., 2023), which state that educational chatbots contribute to increased engagement and motivation to learn through personalized, flexible, and individualized learning experiences. In addition, the research by Andika It shows that dialogue-based learning systems are able to increase students' attention and learning diligence through adaptive feedback. In the context of PAI learning, chatbots not only serve as technological aids but also as learning partners that allow students to build understanding independently without social pressure or fear of teacher or peer judgment. (Andhika et al., 2024) This becomes especially relevant in the learning of religious materials that demand personal reflection and the meaning of values, where students need a safe, private, and supportive dialogue space (Ilma & Suyudi, 2025; Siregar & Nasution, 2024).

Furthermore, the implementation of chatbot-based learning shows a shift in the learning paradigm from a teacher-centered approach to student-centered learning. In practice, teachers act as facilitators, guides, and value reinforcements, while chatbots support the process of exploring knowledge, clarifying concepts, and strengthening students' understanding independently. This shift in roles is in line with 21st century learning principles that emphasize independence, active participation, and learning responsibility for students (Morris et al., 2025; Santika et al., 2025). These findings also strengthen the results of national research, which states that interactive technology-based learning can increase student learning activity and motivation in PAI subjects if teachers function as learning facilitators (Dimas Purnomo et al., 2025; Muh Ibnu Sholeh et al., 2024; Winaningsih & Syarif, 2023).

From a theoretical perspective, the findings of this study are consistent with the theory of constructivism, which emphasizes that knowledge is actively constructed through interaction, experience, and reflection (Amna Saleem et al., 2021; Gunde Yakubu et al., 2025). Chatbots in PAI learning act as a learning catalyst that expands the space for pedagogical interaction, both inside and outside the classroom, allowing students to build learning meanings in a more in-depth and contextual way. With the characteristics of digital learners who are familiar with technology, the use of chatbots is a relevant pedagogical strategy to bridge Islamic values with the learning style of the digital generation (Sholeh et al., 2024; Siregar & Nasution, 2024). Therefore, the implementation stage of chatbot-based learning not only represents technological innovation but also pedagogical transformation in the management of PAI learning.

Evaluation of Chatbot-Based PAI Learning

The evaluation of learning in this study is carried out on an ongoing basis as an integral part of chatbot-based PAI learning management. The evaluation process focuses not only on the achievement of final learning outcomes but also on the dynamics of the student learning process, which includes learning activities,

interaction patterns, and the level of involvement during learning. The evaluation was carried out through direct observation of student activities, reflection on learning outcomes, and analysis of the track record of student interaction with chatbots. This evaluative approach allows teachers to get a more complete picture of student learning development cognitively and motivationally.

The results of the study show that the use of chatbots makes a significant contribution to formative evaluation. Through the recorded interaction data, teachers can monitor students' level of understanding of PAI material, frequency and quality of participation, and indications of student learning motivation more objectively and sustainably. These findings are in line with the view (Ningsih et al., 2025) which emphasizes that formative evaluation plays an important role in improving the quality of learning because it provides direct feedback and is oriented towards improving the learning process. Thus, chatbots function as an evaluative tool that enriches information for teachers in pedagogical decision-making.

Theoretically, the evaluation approach applied in chatbot-based learning is in line with the concept of authentic evaluation. (Ester Novi Kurnia Zebua & Nofamataro Zebua, 2024; Quinlan et al., 2025) stating that authentic evaluation emphasizes the assessment of the student's learning process, experience, and context, rather than solely on the outcome. The use of chatbots allows teachers to access rich qualitative data on how students build understanding, reflect on the material, and respond to learning stimuli. This data is an important basis for teachers to design learning follow-ups that are more targeted and in accordance with the individual needs of students.

However, this study also identified the limitations of the use of chatbots in the PAI learning evaluation process. Chatbots are not yet fully able to capture the complexity of students' affective and spiritual aspects, such as the sincerity of attitudes, depth of appreciation of values, and changes in religious behavior. Therefore, the role of teachers remains a key element in conducting holistic evaluations, especially in providing value reinforcement, Islamic character development, and role models that cannot be replaced by technology. These findings confirm that chatbot-based PAI learning evaluation needs to be combined with a humanistic approach so that the goals of religious education can be achieved optimally.

Implications of Chatbot Utilization on Student Interactivity and Motivation

The results of the study show that the learning management of Islamic Religious Education (PAI) through the use of chatbots has a positive impact on increasing student interactivity and learning motivation. Students show a higher interest in learning, active involvement in the learning process, and a more positive attitude towards PAI subjects. The dialogical interactions facilitated by chatbots encourage students to proactively ask questions, experiment with materials, and expand their understanding beyond conventional face-to-face time limits. These findings are consistent with the idea that the quality of interaction in learning

contributes significantly to students' motivation and learning engagement (Daniel et al., 2024; Syed Ghazanfer Abbas et al., 2025). Furthermore, research by (Budwig et al., 2025) shows that active engagement (student engagement) is a strong predictor of learning outcomes, while (Mohamad Diyan Romadoni et al., 2025) found that the integration of responsive learning technologies improves students' motivation and affective responses in the context of religious education.

From a theoretical perspective, this research makes an important contribution to the development of AI-based PAI learning management concepts by placing chatbots as an integral part of the entire learning cycle, namely planning, implementation, and evaluation. This concept expands the understanding that technology is not just an aid, but part of a pedagogical strategy that considers the cognitive, affective, and contextual dynamics of students (Mohamad Diyan Romadoni et al., 2025). This approach is also in line with the theory of Social Constructivism, which emphasizes that knowledge is built through social interaction and reflection (Paulana & Kanus, 2025). The integration of chatbots in learning management allows for a mutual dialogue that enriches the learning process of students in an interactive and build-your-own-knowledge manner, as found in previous educational technology studies.

Practically, this research has important implications for teachers, curriculum developers, and educational institutions. PAI teachers need to improve digital and pedagogical competencies to be able to design and manage chatbot-based learning effectively, including an understanding of blended learning strategies and adaptive instruction (Chang et al., 2023; Javier & Moorhouse, 2024). Educational institutions are also required to provide adequate technological infrastructure, policy support, and ongoing training to strengthen teachers' digital literacy in the context of religious learning. This is in line with the findings (Deacon et al., 2023; Woldemariam et al., 2025) which shows that organizational support and professional training are determinant factors in the successful implementation of educational technology. In addition, the use of chatbots needs to be combined with a humanistic approach, where the role of teachers as facilitators, spiritual guides, and role models remains the main element in the internalization of Islamic values (Ahmad Taha et al., 2025; Hasan et al., 2023).

However, the use of chatbots in PAI learning also has limitations that need to be considered in practice and further research. Chatbots are not yet fully able to understand the complexity of emotions, spiritual contexts, and the dynamics of students' personal values, so they have the potential to produce textual understanding if not accompanied by teachers (Labadze et al., 2023). In addition, dependence on technology and limited access to infrastructure are challenges in equitable implementation, especially in areas with limited connectivity or educational resources (Ait Baha et al., 2024; Al-Zahrani, 2025). Therefore, the use of chatbots needs to be designed wisely and proportionately, with continuous teacher assistance so that the value and spiritual context are maintained, while maximizing its potential as a strategic innovation in PAI learning.

CONCLUSION

This study concludes that the use of chatbots in PAI learning can increase student interactivity and motivation if managed with integrated learning management. The success of chatbot implementation depends on effective planning, execution, and evaluation. Chatbots support dialogical, responsive, and student-centered learning, as well as strengthen student motivation and aid formative assessment. However, the role of the teacher remains important in guiding the affective and spiritual aspects of the students. In general, chatbots can be a strategic instrument in PAI learning management if they are positioned as pedagogical supporters, not substitutes for teachers. It is recommended that teachers and educational institutions improve pedagogic competence and digital literacy, as well as integrate chatbots with a humanistic approach. Policymakers are also advised to provide infrastructure and regulatory support for the ethical use of AI. Further research is recommended to use mixed methods and involve more subjects, and test their application at various levels of education.

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